



Productivity and inequality in the UK: a political economy perspective

Philip Arestis¹

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Abstract

This contribution is based on the proposition that labour productivity and income inequality are closely and significantly related; this relies on the proposition that there is a strong relationship between productivity, inequality, economic growth and real wages. Productivity growth is the key determinant of how demand can grow without inflation, thereby reducing inequality of income, wealth and opportunity. Indeed, productivity is a significant factor in terms of inequality. It is also the case that the slowdown in productivity growth and increase in inequality that have occurred over a number of years now has affected many advanced economies, as well as others, and has become more pronounced following the Global Financial Crisis. Although weak productivity growth and increase in inequality predate the Global Financial Crisis and the subsequent Great Recession, they have both been exacerbated following them. We deal with these problems from a political economy perspective, and from the point of view that emphasises the structure and power in an economic system. We focus on the UK relevant experience along with other countries.

Keywords Productivity · Inequality · Policy reforms

JEL classification E25 · E62 · G28 · O47

1 Introduction

We deal in this contribution with productivity and inequality from a political economy perspective, and from the point of view that emphasises the structure and power in an economic system. State intervention is an important dimension of this approach and of our contribution. This is mainly due to the behaviour of the private investment, which is attributed to volatile expectations and business confidence, its role to growth and cycles

✉ Philip Arestis
pa267@cam.ac.uk

¹ University of Cambridge, Cambridge, UK

and its influence on the distribution of income and productivity. Since investment needs to be financed, financial markets and the creation of credit are also very important dimensions of this approach. In addition, wages and employment, monetary and financial aspects, and of course the role of the government and policy implications are further relevant and important dimensions.¹

Our focus is on the UK, where there has been a large and persistent fall in labour productivity and thereby increases in inequality. In the initial phase of the Great Recession (GR), between the first quarter of 2008 and the second quarter of 2009, real gross domestic product (GDP) fell by 6.3%. Employment by contrast fell by just 2.1%, significantly less than in previous recessions. As a result, the whole economy labour productivity (output per worker) fell by 4.3%². This produced a weaker productivity performance during the GR in 2008 and 2009 than in previous post-war recessions. The initial drop in productivity during a downturn is typically short-lived. In the previous two recessions, productivity began to rise again only after a few quarters and regained its peak level quite quickly as unemployment fell, while output began to recover (Patterson 2012, p. 13). In terms of the GR, the measured output per worker fell by 3.2% in absolute terms between 2008Q1 and 2012Q3. Almost 5 years after the start of the GR, labour productivity was 12.3% below its pre-recession trend (Disney et al. 2013). Moreover, according to the Office for Budget Responsibility (OBR), the productivity (output per hour) by the end of 2007 was 20% lower than the trend prior to the Global Financial Crisis (GFC). Bryson and Forth (2015) show that labour productivity in the UK was 15–16 percentage points below its growth prior to the GFC. Also, there is a productivity gap of around 6 percentage points with respect to the rest of the G7 (see also Office for National Statistics 2015). Felstead et al. (2018) suggest, ‘The UK has a longstanding labour productivity gap with its international competitors. Following the 2008–2009 recession the situation worsened, with workers in France, Germany and the US producing on average as much in four days as UK workers do in five’ (see also Mason et al. 2018).

Further examples, and in the case of the UK, are provided by Barnett et al. (2014). They investigate the ‘productivity puzzle’ between the GFC and 2012 to conclude that until 2011, there was a doubling of the proportion of firms with reduced output and flat employment (from 11% in 2005/2007 to 22% in 2011). In fact, it is suggested that between the GFC and 2012 labour productivity growth was 14% below the level of the

¹ Our approach is very different from the mainstream approach that views inequality as the outcome of free markets; there is no need thereby to worry about inequality. Given the higher propensity to save of the rich relative to the poor, distribution of income to the rich enhances savings that increase investment and thereby the level of economic activity. Thereby, inequality is positively related to growth. As argued in the text, though, investment is not determined by savings but by other factors, especially expectations of economic activity (see, also Iosifides and Supić 2018, who produce empirical evidence over the period 1980–2015 and in 35 countries, which shows savings is not the main determinant of investment). It is investment that determines savings not the other way round (King 2015). There is also the argument that empirical evidence is required in the case of the macroeconomic effects of redistributive policies to account “whether redistribution in practice is pro- or anti-growth” (Ostry et al. 2014, p. 6). Their empirical results, which employ new data that enables them “to distinguish between the effect of inequality and those of redistribution” (p. 11), show that “inequality continues to be a robust and powerful determinant both of the pace of medium-term growth and of the duration of growth spells” (p. 25). In addition, “The average redistribution, and the associated reduction in inequality, is thus associated with higher and more durable growth” (p. 26).

² The standard definition of labour productivity is the amount of output produced per unit of labour input; and measured as the number either of workers or of hours worked.

pre-GFC trend growth rate. In terms of the falling labour productivity across firms of different sizes, it varied. It fell more sharply for small- and medium-sized enterprises (SMEs) than large firms; however, and by 2011, the productivity weakness became evenly distributed between SMEs and large firms. They also make the point that relative to 2007, in 2011, a greater proportion of firms had lower productivity. McCafferty (2018) reports that ‘on average since 2010, annual productivity growth has fallen to 0.5% (output per hour) or 0.7% (output per worker), down from the 2.2% (hour) and 1.8% (worker) of pre-crisis’ (p. 7). In fact, and as Haldane (2017, Table 1) shows for the past decade, the average productivity growth has been negative. This is very unusual, if not unique, historically. Such a lengthy period of stagnant productivity was only obvious back in the eighteenth century. Moreover, and as Haldane (2018) suggests in the case of UK productivity, ‘the problem is a big one by any historical standards’ (p. 2). It is also the case that the UK’s productivity performance is the worst among developed countries, which does not help growth (Financial Times, 11 July 2018). Interestingly enough, the UK Office of National Statistics (ONS) announced on the 6th of July 2018 (as reported in the Financial Times, 7, July 2018) that not many signs were there for productivity improvement. The Bank of England staff, however, saw ‘glimmers of hope on the horizon’ for productivity improvement (also reported in the Financial Times, op. cit.). The ONS also reported that productivity fell by 0.4% in the first quarter of 2018 and was only 0.9% higher than a year earlier.

It should be noted, though, that the puzzle of weak productivity performance since the GFC is not confined to the UK. The UK experience is in line with that in several other European countries, although the present productivity weakness in the UK stands out more starkly (Patterson 2012, p. 16). In the US, productivity is by contrast strong (Patterson, op. cit.). In fact, and according to the ONS estimates, productivity over the period 2007–2016 was on average 18% higher in the other six members of the G7, 28% higher in the US and 35% higher in Germany than in the UK; and these gaps have been increasing since then (Tenreyro 2018, p. 5). Indeed, and as Haldane (2018) suggests, ‘the UK’s productivity slowdown appears to have been larger than in almost any other country’ (p. 2). However, the factors that explain productivity in other countries may not be the same as in the UK. Indeed, productivity and inequality ‘comparisons over time can depend on the measures used and specific time periods’ (Ravallion 2018, p. 628). This clearly suggests that careful analysis of individual countries’ labour productivity is essential.

The question is what caused such a large and persistent fall in the UK labour productivity and in a number of other countries as well. Indeed, how could this ‘productivity puzzle’, and thereby inequality, be explained? In order to answer this question, we rely mainly on the UK experience in view of the large and persistent fall in labour productivity, and increase in inequality, as suggested above, but refer to other countries as necessary.

2 Causes of the ‘productivity puzzle’ and inequality

In the UK, there has been an increase in labour supply with the labour market more flexible but with less productive workers. Unemployment peaked at around 8.5% of the workforce after the GR, as opposed to 10.7% reported in previous slowdown economic

activity; productivity is thereby hit by keeping workers as demand falls, but employment holds up (Arestis and Peinado 2018). The increase in the number of people looking for work has helped to hold down wage demands, which encourages companies to hire more staff, but less productive, rather than increasing investment in machines. This has contributed to lower real wages, which in turn allowed firms to retain more workers than they otherwise would during periods of falling demand, and thereby to lower labour productivity. The result is a fall in labour productivity since 2008, which is much larger and more persistent than in previous recessions.

Another potential explanation for higher observed labour supply, in the GR compared with previous recessions, might be that individuals have experienced substantial wealth shocks (or shocks to expectations of their future income) because of the GFC, which means they decide to work for longer. However, there is no clear empirical evidence that changes in the industrial composition of the economy or composition of the quality-of-labour as a potential explanation, for the reduction in wages and hence productivity that has occurred during the GR in the UK. This can explain any of the reduction in aggregate labour productivity but not the composition of the quality-of-labour hypothesis (Blundell et al. 2013; Disney et al. 2013). It is therefore concluded that changes in the type of people employed can explain only a small part of the productivity fall. By contrast to other European countries, France in particular, no substantial growth has emerged in terms of temporary contracts (Bryson and Forth 2015). Schneider (2018) examines the period 2002–2014 by splitting it to pre-crisis 2002–2007 and post-crisis 2007–2014 to analyse the UK's 'productivity growth puzzle'. Schneider (op. cit.) shows that the UK productivity slowdown is driven entirely by post-crisis reallocations of workers to firms with less-productive characteristics. Reallocations contributed positively to growth before the crisis. The post-crisis slowdown is entirely located in the top end of the distribution. One other explanation with empirical backing is that there are more individuals willing to work at any given wage, and thus, there is likely to be greater completion for jobs. However, output remains below pre-recession levels, unlike previous recessions when employment levels were lower than before the relevant recessions, but output recovered more than its then previous-recession level.³

A related problem, not just in the case of the UK but in other countries as well, is of local effects on productivity and inequality (Hornbeck and Moretti 2018). An interesting argument is the geographical differences in total factor productivity growth. When a region experiences productivity gains in manufacturing, there are substantial local increases in employment and average earnings. Local productivity growth reduces local inequality, as it raises earnings of local less-skilled workers more than the earnings of local more-skilled workers. This is due, in part, to lower geographic mobility of less-skilled workers. However, these indirect effects on worker earnings, which are substantially greater for more-skilled workers, due to greater geographic mobility of more-skilled workers, increase inequality in other cities. Neglecting these indirect effects

³ Baum-Snow et al. (2018) put forward a theoretical framework and relevant empirical evidence that clearly show that in the US, and for the period 1980–2007, at least 80 percent% of wage inequality emerged in the larger cities. That was due to changes in the composition of labour from unskilled to skilled jobs, whereby the unskilled-workers' wages declined, while the skilled-workers' wages increased. This is supported by another recent study, by Romero and Schwartzman (2018) who argue that this trend in the larger cities has contributed to greater inequality in view of the less-skilled workers having not benefited proportionately.

would both understate the overall magnitude of benefits from productivity growth and miss-state their distributional consequences.

A further important and relevant argument relates to the dramatic decline in trade union membership over the last 30 years, which is likely to have reduced workers' bargaining position. This enables employers to hold constant or reduce insiders' wages. Blundell et al. (2013) show that the decline in collective bargaining, which has accompanied rapidly falling trade union membership, may have contributed to wage stagnation during the GR and hence may help to explain why wages have fallen further in this recession than in the past. However, it is clear that average real wages in 2012 were no higher than in 2005 even for workers protected by national or industry-level collective bargaining. In other words, while the decline in collective bargaining was a contributing factor, it is far from being the main cause of the aggregate wage falls since 2009. Dromey (2018) of the UK Institute of Public Policy Research (IPPR) argues that the sharp fall in trade union membership since 1979 in the UK has directly contributed to the high levels of income and wealth inequality. It is also shown that during periods when union membership grew and in countries where unions were strong, income inequality declined. It is also argued that in the four decades to 1979, trade union membership more than doubled (increasing by 126%), while the share of income going to the top 1% fell by two-thirds (65%).

However, and since 1979, a period during which membership of unions fell by nearly half (47%), the share of wealth that has gone to the richest 1% more than doubled (134%). Indeed, over the past four decades, the share of income going to the top 1% has nearly tripled. Clearly, then, there is a positive relationship between firm level wages and union density. In view of the fact that unions have an interest in boosting firm productivity, it follows that trade unions contribute to productivity; trade union density and productivity are thereby closely related. Indeed, and as Bryson and Forth (2015) suggest increasing unionisation benefits productivity, and of course improves inequality. Also, and as the International Labour Organization (ILO) (2015) suggests, and in the case of many countries, it is important that strengthening trade unions by increasing their membership and encouraging them to be active is a significant factor in tackling low productivity and inequality. It follows that setting a minimum wage should account for the level of productivity. In this case, minimum wages reduce inequality without any significant negative effects on employment. A related issue is the declining real wages since the GR. Significant reductions have emerged in most OECD countries and in the UK in particular (OECD 2014). Bryson and Forth (2015) suggest that a significant percentage of workers have faced nominal wage reductions, especially so in the public sector. Clearly, this is due to the bargaining position of workers, which has declined substantially. Vergeer and Kleinknecht (2011) have demonstrated empirically that the hypothesis of wage changes and productivity holds on average, in 19 OECD countries, a 1 % change in wages causes 0.4% change in labour productivity growth. Storm and Naastepad (2009) present empirical evidence for 20 OECD countries (1984–2004), which have a relatively regulated and coordinated industrial relations system, and show that in such a system, this is strongly related to long-run labour productivity growth (see, also, Storm and Naastepad 2013).

Globalisation is also thought to affect inequality through essentially unskilled labour supply. There is actually a great deal of evidence that inequality increased especially in developing countries as a result of globalisation in view of less-skilled workers who are

relatively abundant in these countries and are not better off in relation to higher skilled workers or education levels (Goldberg and Pavcnik 2007). Not only is the increase in demand for educated workers being driven by globalisation but also by the technological changes in terms of information and communication technologies, which have displaced low-skilled workers and created demand for those with better education (Arestis 2018). It is also the case that globalisation can work through constraints on macroeconomic policies, such as on public budgets and public debt management, which in their turn can affect aggregate demand, thereby having a direct effect on employment growth and on the bargaining position of workers. However, globalisation has accelerated the spread of knowledge and technology across the world. Moreover, as the IMF Blog (30 July 2018) has demonstrated, globalisation has a ‘key benefit—it stimulates the spread of knowledge and technology’. This has helped to increase productivity and potential growth. In terms of inequality, the IMF Blog (op. cit.) suggests that policymakers should make certain that the benefits are shared widely across the population.

Still another explanation of the ‘productivity puzzle’ is the reduction of the capital/labour ratio because of an increase in the cost of capital or decrease in the demand for credit, and thereby a reduction in investment. Business investment fell following the GR, and in view of animal spirits and uncertain economic outlook, especially in terms of future demand (Keynes 1936). Firms may also switch from investment to transactions involving financial assets. The reduction in investment was significantly larger than in previous recessions (Blundell et al. 2013), and has been low since then.⁴ Ten years after the GFC, ‘cumulative growth in business investment is still around 50 and 30 percentage points below where it was at the equivalent stage of the recoveries seen in the decades after the 1979 and 1990 recessions respectively’ (Ramsden 2018, p. 2). There is also the argument that the slow accumulation of the capital stock in relation to workforce accounts for half of labour productivity weakness in the UK; this is so in view of investment reduction given the demand uncertainty and less accessibility to credit. The cost of capital is of course another important aspect in this respect. It has risen despite low interest rates in view of banks’ resistance to lend as suggested above. Hourly labour costs should also be accounted. The UK hourly labour costs have been rising more slowly than in the EU countries, with the exception of Greece, Cyprus and Hungary (Bryson and Forth 2015).

Slower total factor productivity (TFP) in the financial, insurance and manufacturing sectors (McCafferty 2018, p. 7; see, also, Tenreyro 2018) accounts for the other half of the weakness of the labour productivity growth.⁵ A reduction in investment leads directly of course to a reduction in output, since investment is a component of GDP. It can also be expected to have reduced both the level and quality of the capital employed. Both of these factors would directly reduce labour productivity. Productivity reduction thereby emerges which contributes to real wage reduction and hence labour costs. Blundell et al. (2013) suggest that it is plausible that reductions in productivity resulting from a fall in the capital-labour ratio also contributed to

⁴ Another reason behind the uncertain economic outlook in the UK is the added degree of uncertainty over the future relationship of the UK with the European Union (Tenreyro 2018, p. 20; see, also, McCafferty 2018, p. 9).

⁵ TFP is the portion of output not explained by the inputs of labour and capital used in production. TFP captures the effects of changes in technology, institutions, and other productivity shocks.

reductions in real wages and hence labour costs; they find it to be the primary driver of productivity falls and increase in inequality. Further relevant possibilities of productivity reduction include reduction in the pace of innovation as firms cut back on their spending on research and development against a background of uncertainty of future demand. Also lower levels of skills among the workforce emerge, when and if firms cut back training expenditure (Mason et al. 2018, discuss the role of skills in the case of the UK economy along with differences in other countries). Sectoral shifts in the economy could potentially account for some of the fall in productivity. It is the case that there has been a sectoral shift over time from manufacturing to services. Since productivity, growth in the manufacturing sector is higher than in the services sector, such shift could potentially account for some of the fall in aggregate productivity.

The role of the financial sector is also considered a possible factor. Firms require access to capital in order to expand their activities. If the GFC and GR could not produce a situation where banks could provide the lending required by firms, or if firms do not expand their demand for credit in view of uncertainty in terms of future economic activity, then expansion would not materialise, thereby productivity would suffer. Indeed, the case was constrained by some companies' inability to borrow as banks shored up their balance sheets. This is less of an issue now since most banks have recapitalised. There is, however, also evidence that the demand for credit has not expanded in view of poor expectations of future demand for their products. A further related issue is the record-low interest rates. For example, the Bank of England reduced interest rates to 0.5%, making it easier for firms to finance their loans. This has cut firms' borrowing costs and has allowed some highly unproductive firms to avoid going bust. This explains productivity stagnation but only part of it; the Bank of England Quarterly Bulletin (June, 2014) suggests that, at most, 3% of the 20% shortfall in productivity growth can only be explained by the record-low interest rates. The Bank of England (2016) also suggests that the role of finance on investment is complex and that 'higher levels of finance do not unambiguously lead to higher levels of investment and growth' (p. 41). Overall, and as Bryson and Forth (2015) conclude, the decline in bank lending seems 'to have accounted for only a small part of the overall decline in aggregate productivity' (p. 13).

Tenreiro (2018) suggests that the financial and manufacturing sectors account for most of the fall in the UK aggregate productivity growth. As mentioned above, though, recapitalisation implies that the productivity drag from finance disappears. Persistent weak investment has also played an increasing role in the weakness of manufacturing and aggregate productivity. There is also the mis-measurement of productivity. An example is that recently it has been shown that productivity growth in the UK might be underestimated by roughly 0.5% per year in view of the failure to fully account for the digital economy (Bean 2016; see, also, Bryson and Forth 2015). It is argued, though, that the productivity slowdown is largely unrelated to the digital economy dimension, since these problems would need to have increased dramatically and unrealistically to explain fully the productivity slowdown (Haldane 2017, p. 7). Overall, Bryson and Forth (2015) conclude, 'it does not seem that the productivity puzzle can primarily be explained through measurement issues' (p. 9).

The Bank of England (2016) discussion paper deals with the measurement and financing of ‘productive investment’ in the UK.⁶ The main argument is that finance is a powerful driver of economic activity and thereby economic growth. The UK Financial Policy Committee (FPC) has been created to help the Bank of England in its financial stability objective, which is ‘to protect and enhance the resilience of the UK financial system—in the context of investment and economic growth’ (Bank of England 2016, p. 23), with a view to supporting the government’s economic policy. In this respect, the FPC should protect and enhance the stability of the UK provision of financial services to the real economy and most importantly to facilitate the supply of finance for productive investment provided by the UK’s financial system. Clearly, productivity growth is desirable because it enhances economic growth and raises the living standards of the economic agents and of course reduces thereby income and wealth inequality.

As Tridico and Pariboni (2018) suggest, productivity slowdown has been experienced by several developed countries in recent years. Weak GDP and a decline in the wage share are argued to be the major explanatory factors of sluggish productivity. Worsening income inequality and the increase of the degree of financialisation have also contributed to the productivity slowdown. Productivity growth is thereby claimed to depend positively on the rate of growth of GDP and the wage share, and negatively on income inequality and financialisation. Supportive empirical evidence is provided in 26 OECD countries with 594 observations in their panel sample, and for the period 1990–2013. Tridico and Pariboni (2018), by employing a ‘generalised least squares’ (GLS) model with a random effect, provide empirical results, which are important with the relevant coefficients being statistically significant at least within 5%. In terms of their empirically valid relationship, a number of important facts support it: the relatively low investment rates, the modest spending on research and development and the low rates of government investment. Inequality is of course high and financialisation in terms of finance flowing in property for speculation rather than towards productive investment.

Wage share has of course declined and it is very important to account for it as suggested above. Weak wage share is also examined by Bryson and Forth (2015) to conclude, ‘The weakness of real wages was one of the most striking aspects of the recession in the UK’ (p. 47) and of productivity. The reasons for such impact are assigned to welfare reforms (‘increasing labour market participation of the inactive and unemployed’, Bryson and Forth, *op. cit.*, p. 50) and immigration. The flexibility of the labour market is also examined and assigned some degree of impact on productivity. It is argued that the degree of the UK labour market flexibility is higher than in the rest of the EU countries. Further evidence is produced by Bryson and Forth (2015), and in the case of the UK, on the causes of labour productivity over the period 2004 and 2011 both for cross-section and panel data. They conclude that recessions have a ‘cleansing effect’ in that they kill the ‘poorest performers’. Although some evidence on this score is evident, it is limited, implying lower productivity is not significantly affected by the

⁶ Bank of England (2016) defines productive investment “‘as spending that has the potential to expand the capacity of the economy, by adding to the stock of capital, knowledge and technology’” (p. 8). Bank of England (*op. cit.*) recognises that not all investment is productive. It is suggested, “‘investment is productive as long as the expected social return on investment is greater than or equal to the social cost of capital’” (p. 8).

‘cleansing effect’. Bryson and Forth (op. cit.) also examine the possibility of a reduction of ‘human resources practices’, which are implemented by managers in pursuit of higher productivity. This, however, may have contributed to lower productivity. By employing cross-section surveys of 1998, 2004 and 2011, they conclude that such impact is associated with low empirical evidence.

Still another explanation of the UK’s weak productivity and other countries’ as well is ‘a (lack of) management quality’ and the gap with ‘frontier companies’, which makes up the top 5% in terms of productivity performance (Haldane 2017). Indeed, and as the UK ‘Office for National Statistics’ (ONS) relevant score suggests, if UK manufacturing and service companies improved on the simple management practices by 0.1% they would increase productivity by 10%. Such practices include ‘continuous improvement’ in terms of setting goals and encouraging workers to achieve them, conducting performance reviews and sending more people for training (as reported in the Financial Times, 10 July 2018). Inflation is another variable which affects labour productivity. This would be through reducing the real minimum wage and thereby negatively influencing the bottom quintiles of the income distribution. In addition, poor households are affected since they are more reliant on state-determined income that is not fully indexed to inflation (Easterly and Fischer 2001). It should also be emphasised that increasing the minimum wage helps to decrease inequality and thereby increase productivity.

Another relevant contribution (Fernández-Villaverde and Ohanian 2018) investigates real GDP and productivity in the Western European economic performance and in the post-World War II era until the mid-1970s (1946 to 1975); they then draw lessons for the US. The reason Fernández-Villaverde and Ohanian (op. cit.) make this comparison is ‘because the US and Europe are similar in many respects and because the two episodes share many similar economic features’ (p. 3). Their main argument is that over the period 1946 to 1975, Western European countries grew fast because of incentivised technology and investment in human capital; and of course, all those developments helped productivity to increase. It was also the case that a model emerged over that period that was contributing to faster growth and productivity, ‘based on representative democracy, European integration, mixed market economies, and quasi-corporatist welfare states that Eichengreen (2008) has called ‘coordinated capitalism’’ (Fernández-Villaverde and Ohanian 2018, p. 21). Post mid-1970s, though, those Western European policies were abandoned with negative effects. Western Europe has been failing in terms of new technology, business models and managerial practices. The USA, and more recently, has shown signs that similar changes have emerged, and have caused real GDP and productivity indicators to be below their normal trend levels. Thereby, policy reforms are vital to restore Western Europe’s and US’ growth and productivity.

Hein and Tarassow (2010) examine the possible impact of aggregate demand on productivity growth, theoretically and empirically. In terms of theory, the authors propose two testable hypotheses, namely, there is a positive relationship between GDP or capital stock growth, and productivity growth; the other hypothesis is a positive relationship between real wage growth and productivity. These two testable hypotheses are empirically examined in six OECD countries, and for the period 1960 to 2007 to conclude that both hypotheses are supported empirically. A more recent contribution (Alencar et al. 2018), and from a Kaleckian perspective, investigates the relationship

between productivity and growth, labour unit costs, the real exchange rate and the real wage growth. This is investigated theoretically and empirically in the case of Brazil over the period 1960 and 2011. The overall conclusion is that in a wage-led regime, exchange rate devaluation has a positive impact on productivity and economic growth. By contrast, under a profit-led regime, devaluation affects productivity and economic growth negatively. In the case of Brazil, the empirical evidence provided in the study by Alencar et al. (2018) clearly shows that a wage-led regime is the case.

It is clearly the case in terms of the discussion in this section that a diverse set of papers exist with different methodologies and empirical findings in terms of inequality and productivity. However, the key findings that emerge from this literature review are clear. Inequality and productivity have been two issues that have been discussed widely in view of weak productivity and high inequality, especially so since the GFC and GR. The contributions discussed in this section are diverse in terms of their methodologies and findings, but agreement prevails on the weak productivity and high inequality. There is also an agreement that policymakers have not undertaken relevant policies to tackle these problems. Indeed, such policies are very urgently required and should be undertaken.

3 Policy reforms to restore inequality and productivity

Recent experience and evidence clearly suggest that labour productivity and income inequality have been significantly and closely related, not just in the UK but also in other countries as well. This is so since there is a strong relationship between productivity, inequality, economic growth and real wages. Productivity growth is the key determinant of how demand can grow without inflation, thereby reducing inequality of income, wealth and opportunity. Indeed, productivity is found to be a significant factor in terms of inequality (Castle and Hendry 2014; Blundell et al. 2013; Disney et al. 2013; Tenreiro 2018; Haldane 2017, 2018).

It is also the case, and as reported at a European Central Bank conference on ‘Investment and Growth in Advanced Economies’, ‘Perhaps the most remarkable fact about economic growth in recent decades is the slowdown in productivity growth that occurred around the year 2000’ (European Central Bank (ECB) 2017). This slowdown in productivity growth and increase in inequality have affected many advanced economies, as well as others have, and have become more pronounced following the GFC. Although weak productivity growth and increase in inequality predate the GFC and the subsequent GR, they have both been exacerbated following them. They have actually become an important issue in academic and other debates. Productivity and inequality are closely and significantly related. In what follows in this section, we emphasise economic policies that would help to reduce inequality and to increase productivity.

Minimum wage policies, along with strengthening the status of labour unions and collective bargaining institutions, are important relevant policies. It is the case, though, that increasing the minimum wage may affect negatively the demand for labour. It is true that in a wage-led regime, where aggregate demand and employment rise because of such policies, the demand for labour is not affected negatively (see, for example, Onaran and Galanis 2013). The importance of raising the minimum wage and indexing it to inflation is another important tool to fight inequality as also supported by, for

example, *The Economist* (2014). Atkinson (2015) suggests that ‘One mechanism that reduced inequality in the post-war decades appears ... to have been the rising share of wages in national income, a rise that was subsequently reversed’ (p. 70). Moreover, ‘At the same time, the distribution of capital income was becoming less unequal’ (p. 71); such occurrence, though, did end after the 1980s.

Unemployment is another relevant factor, which was significantly lower in the period after the Second World War until the late 1970s. Unemployment, though, increased substantially, especially in Europe, subsequently. In view of these developments, Atkinson (op. cit.) suggests a relevant economic policy: ‘The government should adopt an explicit target for preventing and reducing unemployment and underpin this ambition by offering guaranteed public employment at the minimum wage to those who seek it’ (p. 140). In addition, Atkinson (op. cit.) proposes that ‘There should be a national pay policy, consisting of two elements: a statutory minimum wage set at a living wage, and a code of practice for pay above the minimum, agreed as part of a ‘national conversation’ involving the Social and Economic Council’ (p. 148). In view of the above suggestions, it follows that an unemployment target of 2%, along with the government acting as ‘an employer of last resort’, thereby introducing guaranteed public employment, is an important initiative. Not forgetting of course that unemployment benefits should be higher than currently and should be introduced as part of policies to reduce inequality and thereby enhancing productivity. All these measures should produce a more equitable income distribution.

Fiscal policy in terms of reform of taxes to make them fairer and more effective, especially so taxation on corporate profits, is also very important. Indeed, Korinek and Kreamer (2013) advocate that redistributive policies ‘such as higher taxes on financial sector profits that are used to strengthen the social safety net of the economy would constitute such a mechanism’ (p. 6; see also Berg and Ostry 2011). A recovery led by domestic demand and increase in the wage share would help to reverse the major factor of inequality. Gains in competitiveness can and should be achieved through productivity increases rather than wage reductions and weak labour conditions. In this sense, strong trade unions, collective bargaining and high minimum wages are beneficial. All this would ensure that wage growth catches up with productivity growth, and hence consumption and income growth. The state should be able to reduce inequality through progressive taxation and public expenditure policies. These policies would tax the top more than the rest, and through the orientation of social expenditure towards the low-income households. By contrast, those programmes, which allow a country to give away resources to the rich and well-connected, increase inequality. A good example of the latter case is the enormous decrease of the progressivity of the income tax in the US and the UK since 1980, which ‘probably explains much of the increase in the very highest earned income’ (Piketty 2014, pp. 495–496). As suggested by the IMF (2014), fiscal policy is the primary tool for governments to affect income distribution and thereby inequality. This should be undertaken through both tax and spending policies. Another IMF (2015) study suggests, ‘Fiscal policy is a powerful and adaptable tool for achieving distributional objectives. Considering tax and spending programs together enhances the effectiveness of fiscal redistribution’. Thereby, ‘improving both distributional outcomes and economic efficiency is possible’ (p. 1). As for specific guidance on the use of fiscal policy for redistribution, this, as it is suggested, is a country-specific problem (IMF 2014, 2015; see also, Dabla-Norris et al. 2015).

A further suggestion on economic policies is the Piketty (2014) proposal for a progressive global tax on capital, ‘that is a tax on the net value of assets each person controls’ (p. 516), which should be ‘a progressive annual tax on global wealth. The largest fortunes are to be taxed more heavily, and all types of assets are to be included: real estate, financial assets, and business assets – no exceptions’ (p. 517). It is also argued that a global tax on capital can impose effective regulation on the financial and banking system, which helps to avoid crises. Such tax would require international cooperation, and as such, Piketty (2014) admits, ‘it is a utopian idea’, but ‘it is nevertheless useful’ (p. 515). Still, and although implementing such a tax would be a serious challenge politically, Piketty (op. cit.) suggests that if the EU and the US supported such a tax, it would be a great way forward. Atkinson (2015) suggests in the context of global taxation that such a tax ‘under the auspices of OECD’ (p. 201) could produce a ‘World Tax Administration’; indeed, Atkinson (op. cit.) argues that such economic policies to reduce inequality in the OECD and EU countries as a whole are indeed possible. Although Atkinson (op. cit.) recognises the difficulties of pursuing such a path, cooperation and coordination of economic policies of the group of countries concerned should produce a desirable outcome. Atkinson (2015) also suggests that ‘a more progressive structure for the personal income tax’ (p. 290) is most appropriate to tackle inequality, along with an ‘earned income discount’ should be introduced, which aims at not raising the tax rate on low levels of earnings (and pensions) as a result of the implementation of the progressive tax structure. Proportional or progressive property taxation, a wealth tax, child benefits, which should be central to any policy action to reduce inequality, and a global taxation are all important ingredients.

Atkinson (2015) is right to highlight the paramount importance of distributional policies, especially so fiscal policies along with wage policies, if inequality is to be reduced along with enhancing productivity. We would argue, however, that to reduce inequality significantly as Atkinson (2015) suggests, proper coordination of monetary and fiscal policies along with financial stability, which is the main focus of monetary policy, would be the best way forward (see also Arestis 2017). Fiscal policy should be directed at reducing inequality through appropriate expenditure and progressive tax policies, which should be supported by monetary and financial stability policies. The focus of financial stability should be on the proper control of the financial system so that it becomes socially and economically useful to the private sector and to the productive economy in particular. Such regulation would also avoid the type of financial architecture that led to the GFC; for it is the case that such regulation had been neglected prior to the GFC (Arestis 2016). There is empirical evidence which is supportive of coordinating fiscal and monetary policies. Eggertsson (2006) provides relevant empirical evidence and reaches the conclusion that under fiscal and monetary policy coordination, fiscal multipliers are higher than in the case of no coordination; they are, indeed, higher than those found in the traditional Keynesian literature. A more recent contribution from the ECB (Corsetti et al. 2016) concludes that monetary and fiscal policies ‘together’ are necessary to stabilise the level of economic activity and inflation. Indeed, ‘For the multiplier to be sizable it is essential that monetary policy accommodates the fiscal stimulus’ (p. 8). We would add on top of this kind of coordination measures to restrict financial speculation, and restructure the financial sector to avoid financial crises, via financial stability policies.

4 Summary and conclusions

We have discussed in this contribution the relationship between productivity and inequality, which theoretically along with recent experience and evidence clearly suggest, are closely and significantly related. In doing so we have relied on the experience of a number of countries but focused more on the UK experience in view of the persistent increase in inequality and fall in the productivity in this country.

Addressing income inequality and productivity is even more important today in view of the poor experience with both prior but also since the GFC and GR. Our main argument is that a recovery led by domestic demand and an increase in the wage share in the economy would clearly help to reverse the poor performance of both productivity and inequality. We have also argued that a combination of economic policies is needed to tackle the 'productivity puzzle' and inequality. We have suggested that progressive taxation and public expenditure policies, social welfare and industrial relations are all relevant and important.

Atkinson (2015) has proposed an important suggestion that 'a more progressive structure for the personal income tax' (p. 290) should be introduced. Atkinson (op. cit.) also proposes that it is of paramount importance to have in place proper distributional policies along with wage policies if a viable growth regime and a fairer distribution of income and wealth and an increase in productivity would emerge and be sustained. We would go further, though, and suggest that to reduce inequality and increase productivity significantly, proper coordination of monetary and fiscal policies along with financial stability, which is the focus of monetary policy, would be the best way forward. Fiscal policy should be implemented through appropriate expenditure and progressive tax policies, which should be supported by monetary and financial stability policies. The latter should be concerned with reforms in an attempt to regulate and avoid the type of financial architecture that led to the GFC, for it is the case that such regulation had been neglected prior to the GFC. It is the case that neglect of proper regulation of the financial system does not work as the proponents argue; indeed, it leads to greater inequality and lower productivity.

Compliance with ethical standards

Conflict of interest The author declares that he has no conflict of interest.

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